Amendment to the Claims

Kindly amend claims 25 and 53, as set forth below. In compliance with the Revised Amendment Format published in the Official Gazette on February 25, 2003, a complete listing of claims is provided herein. The changes in the amended claims are shown by strikethrough (for deleted matter) and underlining (for added matter).

1-24. (Cancelled)

25. (Currently Amended) A method for correcting for systematic errors in the writing of timing patterns on a storage medium by a head of a recording device, said method comprising:

detecting a plurality of systematic timing errors at a plurality of differing circumferential positions;

~~detecting~~ using at least multiple systematic timing errors of said plurality of systematic timing errors to determine one or more circumferential systematic timing errors, wherein a circumferential systematic timing error is an along-track systematic error that varies with circumferential position; and

correcting for said one or more circumferential systematic timing errors.

26. (Previously Presented) A method for correcting for systematic errors in the writing of timing patterns on a storage medium by a head of a recording device, said method comprising:

detecting one or more circumferential systematic errors, wherein said detecting comprises computing an integral correction value for a time interval, wherein a non-zero integral indicates a circumferential error; and

correcting for said one or more circumferential systematic errors.

27. (Original) The method of claim 26, wherein said computing comprises adding a random error correction for said time interval to said integral correction value to obtain said integral correction value.

28. (Original) The method of claim 27, wherein said correcting comprises calculating a target interval for said time interval, said calculating using said integral correction value.

29-52. (Cancelled)

53. (Currently Amended) An apparatus for correcting for systematic errors in the writing of timing patterns on a storage medium by a head of a storage device, said apparatus comprising:

a controlling unit to detect a plurality of systematic timing errors at a plurality of differing circumferential positions and to use at least multiple systematic timing errors of said plurality of systematic timing errors to determine ~~detect~~ one or more circumferential systematic timing errors, wherein a circumferential systematic timing error is an along-track systematic error that varies with circumferential position; and

said controlling unit to correct for said one or more circumferential systematic timing errors.

54. (Previously Presented) An apparatus for correcting for systematic errors in the writing of timing patterns on a storage medium by a head of a storage device, said apparatus comprising:

a computing unit to compute an integral correction value for a time interval, wherein a non-zero integral indicates a circumferential error; and

a controlling unit to correct for one or more circumferential systematic errors.

55. (Previously Presented) The apparatus of claim 54, wherein said computing unit is to add a random error correction for said time interval to said integral correction value to obtain said integral correction value.

56. (Previously Presented) The apparatus of claim 55, wherein said controlling unit is to calculate a target interval for said time interval, using said integral correction value to correct for said one or more circumferential errors.

57. (Presently Presented) A storage device comprising:

a storage medium; and

a head radially positioned by an actuator, said head instructed by a controlling unit to write a self-servo timing pattern on said storage medium, wherein systematic errors are eliminated and a trajectory of said self-servo timing pattern matches a trajectory traced out by the head in its radial motion across the storage medium.

58. (Previously Presented) The storage device of claim 57, wherein said head is to write said self-servo timing pattern such that random errors in a track to track alignment of the self-servo timing patterns are statistically constant in their root mean square value across at least a desired portion of a surface of the storage medium.

59. (Previously Presented) The storage device of claim 57, wherein said head is to write said self-servo timing pattern such that random errors in a track to track alignment of the self-servo timing patterns are corrected in a manner that leads to a growth of errors that is less than the square root of the track number typical of a random walk process.

60. (Original) A method for determining systematic time delays in the writing of trigger patterns on a storage medium of a storage device, said method comprising:

taking a plurality of measurements of at least one trigger pattern at a plurality of radial positions; and

using said plurality of measurements to determine at least one systematic time delay.

61. (Original) The method of claim 60, wherein said at least one systematic time delay is at least one off-track time shift estimate.

62. (Original) The method of claim 60, further comprising using said at least one systematic time delay to write one or more trigger patterns on said storage medium.

63. (Original) The method of claim 60, wherein a measured systematic time delay has a mean whose absolute value is greater than zero.

64. (Original) The method of claim 60, further comprising correcting at least one systematic time delay.

65. (Original) The method of claim 60, wherein random errors in the placement of trigger patterns are also corrected.

66. (Previously Presented) An apparatus for determining systematic time delays in the writing of trigger patterns on a storage medium of a storage device, said apparatus comprising:

a processing unit to take a plurality of measurements of at least one trigger pattern at a plurality of radial positions; and

said processing unit to use said plurality of measurements to determine at least one systematic time delay.

67. (Original) The apparatus of claim 66, wherein said at least one systematic time delay is at least one off-track time shift estimate.

68. (Previously Presented) The apparatus of claim 66, wherein said processing unit is to use said at least one systematic time delay to write one or more trigger patterns on said storage medium.

69. (Original) The apparatus of claim 66, wherein a measured systematic time delay has a mean whose absolute value is greater than zero.

70. (Previously Presented) The apparatus of claim 66, further comprising a controlling unit to correct at least one systematic time delay.

71. (Previously Presented) The apparatus of claim 66, wherein said controlling unit is to correct for random errors in the placement of trigger patterns.

72. (Previously Presented) The method of claim 25, wherein the circumferential position is relative to an index position.

73 . (Previously Presented) The system of claim 53, wherein the circumferential position is relative to an index position.